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ABSTRACT

In 1997 the Nevada State Legislature approved Assembly Bill 606 (AB606), which appropriated funds to the University and Community College System of Nevada (UCCSN) for the purchase of computer hardware and software, and communication services. In July of that year, the K-16 Partnership for Distance Learning adopted three priorities that have guided the development of plans for the use of AB606 funds: (1) To increase access of public elementary and secondary students to Internet resources and educational experiences available through technology; (2) To increase access to needed educational experiences for Nevada's K-12 teachers; (3) To continue enhancement of UCCSN's Statewide Electronic Network and other needed technological and programming advancements. This report briefly outlines the background of the bill, the allocation process, the vision and the goals of distance education, and an explanation of differences that distinguish distance education. Most of the report is devoted to the accomplishments achieved between July 1997 and December 1998, including the number of students and teachers involved in distance education activities, enrollment figures, infrastructure enhancements, partnerships formed, and quality improvements made. The report concludes with a financial section and future steps to be taken. Contains 14 tables. Principles of good practice are appended. (TGO)

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ED 431 447

UNIVERSITY and COMMUNITY COLLEGE SYSTEM of NEVADA

REPORT on DISTANCE EDUCATION and AB606 FUNDING

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PREPARED for the 70th NEVADA LEGISLATURE

(in accordance with AB 606, 1997 Session)

JANUARY 1999

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University of Nevada, Reno ● Community College of Southern Nevada
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Report Prepared by the Department of Academic & Student Affairs
Office of the Chancellor
January 1999

REPORT ON DISTANCE EDUCATION AND AB606 FUNDING

EXECUTIVE SUMMARY

PLANNING PARAMETERS

Activities funded by AB606 are guided by (a) priorities established by the K-16 Partnership for Distance Learning, (b) a vision and mission statement, and (c) these four goals:

1. To facilitate improved access and opportunity to higher education for Nevada residents.
2. To increase the number of Nevada high school students who continue on to higher education.
3. To promote distance education class exchanges among UCCSN campuses to share special talent and expertise, to reduce duplication, and to improve access to programs and degrees.
4. To develop more flexible and cost-effective methods of distance education delivery.

ACCOMPLISHMENTS

1. For the period July 1, 1997 through December 1998, distance education credit activities at UCCSN institutions served:

   - 622 high school students;
   - 849 K-12 teachers;
   - 8,020 other Nevadans;
   - at over 50 unduplicated sites across Nevada;
   - totaling 9,481 duplicated headcount students served; and
   - 1,937.1 FTE students served.

2. In addition, non-credit activities by UCCSN institutions and K-12 partners (KLVX, Clark County School District) served:

   - 1,219 high school students;
   - 250 K-12 teachers; and
   - 200 other Nevadans.

3. Enrollments during this period (1997-98) increased significantly over enrollment during SB204 (1996-97):

   - 7% increase in high school students enrolled;
   - 17% increase in K-12 teachers enrolled;
   - 320% increase for all other Nevadans enrolled in distance education; and
   - 160% increase in TOTAL enrollments in all activities.

4. Infrastructure enhancements to NevadaNet include, but are not limited to:

   - Added 12 new interactive video classrooms (6 at high schools);
   - Expanded network at 11 sites;
   - Improved existing classrooms at 16 sites;
   - Added 17 T-1 connections (7 to high schools); and
   - Installed ATM technology at 4 sites.

5. Over 400 credit courses and numerous non-credit activities were offered (see Tables 11 and 12).

6. Numerous partnerships were forged among:

   - UCCSN institutions;
   - UCCSN institutions and K-12 partners;
   - UCCSN institutions and business partners.

7. Quality improvements were made at all institutions during this time period, including:

   - Faculty development activities;
   - Changes in student services; and
   - Policy/procedural changes.

8. A financial report indicates:

   - UCCSN institutions contributed approximately $850,000 of additional funds through internal reallocation to support distance education activities during the reporting period; and
   - UCCSN institutions were able to leverage AB606 funding and increase the total amount of funds available by $823,527.

FUTURE STEPS

1. A $3.85 million budget request for 1999-2001 to expand distance education offerings:

    - The request includes performance measures, including a commitment

        - to increase courses to high school students by 50%;
        - to work collaboratively with K-12 in designing and providing K-12 professional development opportunities that address the new standards; and
        - to develop and offer programs that address other occupational needs in the state.

2. New policies, adopted by the Board of Regents in November 1998, direct UCCSN institutions:

    - To prepare an annual program plan for distance education that will ensure high priority state needs are met and state resources are used wisely;

    - To share courses and work collaboratively to address state needs without regard to traditional geographic boundaries; and,

    - To locate resources from outside the UCCSN if a need cannot be addressed by the system in an expeditious manner.

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UNIVERSITY and COMMUNITY COLLEGE SYSTEM of NEVADA

REPORT on DISTANCE EDUCATION and AB606 FUNDING

JANUARY 1999

PREPARED for the 70th NEVADA LEGISLATURE
(In accordance with AB 606, 1997 Session)

AB606 Report to the Legislature: UCCSN Accomplishments, Financial Report, and Issues

BACKGROUND

The 1997 Nevada State Legislature approved Assembly Bill No. 606 (AB606), which appropriated funds to the University and Community College System of Nevada (UCCSN) for the

> purchase of computer hardware and software, communication services and related nonrecurring services necessary to enhance the System's educational information network to improve access for students of the University and Community College System of Nevada, pupils in public schools and residents of this state to information and educational programs through the use of the Internet and interactive video (Section 1).

Funds were to be used in the year and for the purpose specified in Table 1. A final report is to be submitted to the Legislature by February 15, 1999 describing all expenditures of AB606 funds, the status of the System's network, and the number and types of educational enhancements provided with these funds. Although AB606 funds can be spent on appropriate activities until June 30, 1999, this report is a comprehensive accounting of activities as of December 31, 1998.

Table 1
AB606 Appropriations

	1997-98	1998-99	Total
Operating	$1,550,000	$1,550,000	$3,100,000
Personnel	$ 200,000	$ 200,000	$ 400,000
Totals	$1,750,000	$1,750,000	$3,500,000

PROCESS OF ALLOCATION

Priorities

In July 1997, the K-16 Partnership for Distance Learning adopted the following priorities. These priorities have guided the development of plans for use of AB606 funds.

Priority 1: Increase access of public elementary and secondary students to Internet resources and to educational experiences available through technology and distance education.

Priority 2: Increase access to needed educational experiences for Nevada's K-12 teachers.

Priority 3: Continue enhancement of UCCSN Statewide Electronic Network [i.e., NevadaNet] and other needed technological and programming advancements.

In addition, the 1997 Legislature appropriated approximately $36 million to the K-12 sector for needed technical enhancements to schools, Internet access, teacher development, as well as preparation of a State Plan for Educational Technology. To the extent possible, AB606 funds were used to support these important efforts.

Allocation of Funds

Based on a review of institutional accomplishments with funding provided by the 1995 Legislature (SB204) and identified needs, AB606 funds were allocated as displayed in Table 2. Funds were to be split evenly between the 1997-98 and 1998-99 fiscal years.

Table 2
AB606 Institutional Allocations (1997-99)

Recipient	Operating	Personnel	Total
CCSN	$ 388,000	$ 50,000	$ 438,000
DRI	$ 47,000	$ 50,000	$ 97,000
GBC	$ 106,000	$ 75,000	$ 181,000
SCS	$ 657,000	--	$ 657,000
Sys. Admin.	$ 600,000	--	$ 600,000
TMCC	$ 97,000	$ 50,000	$ 147,000
UNLV	$ 571,000	$ 50,000	$ 621,000
UNR	$ 466,000	$ 50,000	$ 516,000
WNCC	$ 168,000	$ 75,000	$ 243,000
Total	$3,100,000	$400,000	$3,500,000

Based on these allocations, institutions submitted detailed plans and budgets for the proposed expenditures. Plans were reviewed and approved by the Vice Chancellor for Academic and Student Affairs, and proposed uses of AB606 funds that were deemed inappropriate were revised at this stage. Each institution was expected to make clear the amount and type of non-AB606 (or institutional) funds used to support these activities (this information is reported in a later section). Funds held by the System Administration office were allocated to institutions based on proposed uses that would support system priorities (e.g., joint efforts, system enhancements).

Reporting

A quarterly reporting process was initiated through System Computing Services (SCS), which included reporting of enrollments, use of AB606 funds by category, and the use of

non-AB606 funds. On the basis of a review of quarterly expenditures and progress made on the institution's plan, the System Administration office approved release of AB606 funds to the institution. A reconciling of AB606 funds for 1997-98 was made in July 1998, so that use of funds for operating and personnel would comply with the specifications of AB606.

This report includes five sections:

(1) a vision, mission statement, and goals for distance education in the state of Nevada,
(2) new policies adopted by the Board of Regents to guide distance education,
(3) a description of distance education and what makes it different,
(4) accomplishments resulting in part from AB606 appropriations,
(5) financial reporting, and
(6) identification of the next steps needed resulting from an evaluation of AB606 activities.

VISION, MISSION STATEMENT, AND GOALS

Vision

All UCCSN institutions seek to work collaboratively to expand distance learning opportunities to all Nevadans, to use technology to deliver quality programs, and to continuously improve over time.

Mission Statement

The mission of the UCCSN is:

> "To provide higher education services to the citizens of the State at a high level of quality consistent with the state's resources. It accomplishes this mission by acquiring, transmitting and preserving knowledge. The System endeavors to assist in providing an educated and technically skilled citizenry for public service and the general welfare, to contribute toward an educated and trained work force for industry and commerce, and to facilitate the individual quest for personal fulfillment."

Distance education activities and programs are one of the many ways that UCCSN fulfills its mission.

Goals of Distance Education

In order to contribute to the UCCSN mission, distance education has a special responsibility to assist in the accomplishment of the following four goals.

1. To facilitate improved access and opportunity to higher education for Nevada's residents.
2. To increase the number of Nevada high school students who continue on to higher education.
3. To promote distance education class exchanges among UCCSN campuses to share special talent and expertise, to reduce duplication, and to improve access to programs and degrees.
4. To develop more flexible and cost-effective methods of distance education delivery.

NEW POLICIES

In November 1998, the Board of Regents adopted a number of new policies to guide the development and operation of distance learning within the system. Given the recent changes in technology and the need to use resources wisely, the Board is supportive of the move toward courses and programs being offered statewide and a system approach to planning and delivering distance learning in the state of Nevada. The new policies are:

1. Elimination of geographic service areas except for siting and maintaining interactive video classrooms;

2. Annual program planning for distance education by all UCCSN institutions to occur in accordance with the following principles:

   a. Plan as a system to address state needs.
   b. Operate programs collaboratively and share resources, if appropriate.
   c. Base program decisions on documented student or citizen need.
   d. Work with constituent groups (e.g., K-12 school districts, employers, industry representatives) to identify and prioritize the most pressing educational needs.
   e. Use a combination of technologies, as appropriate to curricular needs and student learning styles.
   f. Ensure that academic plans influence the expansion of the technical infrastructure.
   g. Provide essential support services to students.

h. Build institutional and system capacity to address more needs through distance learning.
i. Be accountable to the Legislature and the public for their use of state resources and the quality and appropriateness of their services.
j. Partner with or broker programs from out-of-state institutions, where appropriate.

3. Each campus will have a policy or procedure for the approval of distance learning courses and programs. No institution can offer a degree program in distance learning format that has not been previously approved by the Board of Regents for traditional delivery.

4. Distance learning activities at UCCSN institutions will subscribe to the "Principles of Good Practice for Electronically Offered Degree and Certificate Programs," as developed by the Western Cooperative for Educational Telecommunications (in the Appendix).

5. The institution offering a distance learning course will receive the student FTEs enrolled in the course. If the course incurs costs to partner institutions (e.g., marketing, registration, technology support), a "sharing protocol" should be completed prior to the course being offered to identify costs that must be reimbursed among parties.

6. Each campus will establish a protocol for determining costs or services to be paid by each partner when courses or programs are shared among institutions. The protocol will include – but not be limited to – sharing of special student fees, payment of facilitators and other services, responsibilities for marketing the course and recruiting students, advising, and other support. The protocol will be updated regularly.

7. When institutional funds are used to purchase interactive video equipment, that equipment is owned by the institution. Institutions accepting ownership of interactive video equipment also accept responsibility for maintenance and service of that equipment.

   When interactive video equipment owned by an institution is located at a non-UCCSN site or such equipment is shared with non-UCCSN institutions, a Memorandum of Understanding (MOU) shall be completed. The MOU will clearly specify the responsibilities of each party and what level of funding each party provides to support the equipment and related charges.

   Oversight of scheduling and switching of interactive video is the responsibility of System Computing Services (SCS). SCS will work

closely with institutional representatives, particularly in regards to installation, connectivity, and transmission.

8. Student registration fee and tuition rates for distance learning courses shall be the same as those for other forms of instruction. Special rates for high school students may be set by the Board of Regents.

DIFFERENCES THAT DISTINGUISH DISTANCE EDUCATION

In the past, distance education has been very different from traditional higher education. National data tell us that distance education students were often older, felt more isolated, employed and with multiple time commitments, and – given the opportunity – good students. Using the technology was often difficult, requiring students to learn new skills and to tolerate temporary problems. Offerings were few, and choice limited. And yet enrollments climbed, technological innovations improved delivery, problems were solved, and new types of institutions – virtual universities like the Western Governors University (WGU) – were initiated.

The success of distance education is due to several factors. First, although its roots are in providing services to rural areas, new students increasingly come from urban locations, where traffic, work and family commitments, and demands for professional development create the same need for flexible educational opportunities. Second, the number and type of persons needing training, retraining, professional development, and personal growth have soared due to the demands of the marketplace. Third, the technology – although continuing to suffer from the occasional glitch – has become more reliable, better understood, and easier for teachers and students to use. For example, the mix of technologies available – satellite, interactive video, Internet, videotapes – each have their strengths and weaknesses, and make it important that faculty learn how best to match technology to the student learning outcome. Fourth, the potential of the Internet has created an explosion of users in the home, in the office, and at school, and this market has encouraged the entrance of new educational providers, such as WGU.

However, there are challenges ahead: Developing the types of educational programs needed by students in Nevada, encouraging the deployment of Internet service to citizens across the state, and extending the benefits of technology-mediated educational experiences to students enrolled on the main campuses of UCCSN institutions. To be successful, these will require extensive faculty training in how to use technology effectively to support student learning and time to develop what are radically different types of courses. Eventually, distance education will not be for those at a distance anymore, but just another way of serving students. It will take time and effort, but the payoff in terms of more students pursuing a better higher education will be significant.

ACCOMPLISHMENTS

Students Served

Tables 3 through 7 detail the student enrollments in UCCSN distance education activities that are supported in part by AB606 appropriations:

- by institution,
- by term (Summer 1997, Fall 1997, Spring 1998, Summer 1998, and Fall 1998),
- by student type (high school student, K-12 teacher, other Nevadan),
- by the number of courses offered,
- by site, and
- by headcount or FTE student.

In addition, in 1997-98 UNLV also offered nine non-credit activities (described in detail in Table 10 but not included in Tables 3-7 below) that served 92 high school students, 100 K-12 teachers, and 200 other Nevadans. While these activities do not generate FTEs, they certainly are another avenue for serving the community and serve as an important way to convince high school students that college is for them.

The low figures for Summer 1997 are due to the late notice to institutions of the receipt of AB606 funding.

Serving K-12

AB606 funds were also used to support a number of K-12 partners:

- KLVX (National Teacher Training Institute and development of videotape courses);
- Clark County School District (interactive video classrooms at 6 schools; Elmo equipment for presentation of information in the interactive video environment);
- Washoe County School District (computer lab for teachers; interactive video classroom at Incline Village; line connection to UNR);
- In addition, the UCCSN has placed interactive video classrooms in Carson, Clark (6 sites), Douglas, Eureka, Lincoln (2 sites), Nye, Washoe, and White Pine school districts.
- Elko, Humboldt, and Lander school districts have access to classrooms located at nearby Great Basin College sites in Elko, Winnemucca, and Battle Mountain.
- Churchill, Pershing, Mineral, and Lyon school districts have access to classrooms operated by Western Nevada Community College in Fallon, Lovelock, Hawthorne, and Yerington (the last three sites are co-located on the high school campus).
- Plans to locate an interactive video classroom in Storey school district are included in the 1999-2001 Distance Education Budget Request.

While it is relatively straightforward to report how AB606 funds supported the enrollment of K-12 students in college courses, it is more difficult to count the K-12 students impacted by AB606 used by our K-12 partners for activities conducted by the school district. However, Clark County School District, using production personnel funded by SB204 to develop and deliver courses for high school students, offered 19 courses in English and applied communications, history and government, from Summer 1997 to Fall 1998. These courses enrolled 782 students, who were helped to finish their studies and perhaps avoid dropping out of school. These enrollments have not been included in Tables 3 through 7, but have been included in any summary analysis of the impact of distance education and comparisons with earlier funding cycles.

In addition, KLVX Channel 10 – through support provided through AB606 – did serve 150 local teachers through its National Teacher Training Institute (NTTI) in the summer of 1998. A similar number of teachers will be supported during the NTTI held next summer.

Therefore, in the reporting period of Summer 1997 through Fall 1998, over 1,496 high school students were enrolled in credit-bearing college-level courses, non-credit activities, or high school courses via distance technologies. Over 949 K-12 teachers enrolled in the various distance education credit courses or non-credit activities. For the courses that reach K-12 teachers, it is estimated that this effort benefited almost 20,000

students enrolled in Nevada schools (this is based on the assumption that each teacher affects the learning of 20 students, which is a conservative estimate).

For example, the 16 science boxes resulting from DRI's AB606 effort were used by teachers in 100 classrooms during 1997-98. If those teachers affect the understanding of science in 20 students in each classroom, the science boxes have reached 1,000 students. By 1998-99, DRI will have 25 science boxes available for use by K-12 teachers in 125 classrooms, extending the impact of those boxes to 2,500 students.

Table 3 -- Summer 1997
UCCSN Distance Education Enrollments

	# of Courses	Enrollments					# of Sites Served
		High School Students	K-12 Teachers	Other Nevadans	Total Headcount	Total FTE	
CCSN	1	--	--	26	26	5.2	16(a)
DRI	1	--	15	--	15	--	3(b)
UNLV	2	--	30	5	35	12.3	2+(c)
WNCC	5	6	--	106	112	22.4	6(d)
Totals	9	6	45	137	188	39.9	26+(e)

NOTES: Summer term is self-sustaining; FTE calculations based on 15 undergraduate credits equal 1 FTE and 8 graduate credits equal 1 FTE.

(a) CCSN: Alamo, Bunkerville, Caliente, Gabbs, Goldfield, Laughlin, Logandale, Mesquite, Moapa, Overton, Pahrump, Panaca, Pioche, Round Mountain, Silver Peak & Tonopah.
(b) DRI: Teachers came from Churchill, Lincoln, Elko, Carson, Humboldt, Clark and Washoe counties.
(c) UNLV: Las Vegas and southern Nevada.
(d) WNCC: WNCC Carson, Douglas H.S., WNCC Fallon, Mineral County H.S., Pershing H.S., WNCC Yerington.
(e) 26+ unduplicated sites (given that many classes use non-site-based technologies such as videotape or Internet, it is impossible to give an accurate count of total sites served).

Table 4 – Fall 1997
UCCSN Distance Education Enrollments

	# of Courses	Enrollments					# of Sites Served
		High School Students	K-12 Teachers	Other Nevadans	Total Headcount	Total FTE	
CCSN	13	20	--	308	328	65.8	16(a)
GBC	47	20	--	663	693	116.0	13(b)
TMCC	16	40	--	385	425	77.0	8(c)
UNLV	14	38	62	195	295	69.9	15(d)
UNR	14	10	167	401	578	140.0	10(e)
WNCC	18	22	32	277	331	74.7	7(f)
Totals	123	150	261	2,229	2,640	543.4	55(g)

NOTE: FTE calculations based on 15 undergraduate credits equal 1 FTE and 8 graduate credits equal 1 FTE.

(a) CCSN: Alamo, Bunkerville, Caliente, Gabbs, Goldfield, Laughlin, Logandale, Mesquite, Moapa, Overton, Pahrump, Panaca, Pioche, Round Mountain, Silver Peak & Tonopah.
(b) GBC: Elko, Ely, Eureka, Winnemucca, Battle Mountain, Round Mountain, Austin, McDermitt, Wendover, Wells, TMCC, Jackpot, Owyhee.
(c) TMCC: Dandini, Old Town Mall, Incline Village H.S., Battle Mountain, Ely, SNCAT, KNPB, and Internet.
(d) UNLV: Advanced Technologies Academy, Bonanza H.S., Eldorado H.S., Valley H.S., Nevada Power in Las Vegas, Laughlin, Pahrump, Elko, Reno, Overton, Boulder City, Henderson, Logandale, North Las Vegas, Pendleton (OR).
(e) UNR: Carson City, Elko, Fallon, Hawthorne, Reno, McQueen H.S., Reed H.S., Winnemucca, & Yerington.
(f) WNCC: WNCC Carson, Carson H.S., Douglas H.S., WNCC Fallon, Mineral County H.S., Pershing H.S., WNCC Yerington.
(g) 55 unduplicated sites (given that many classes use non-site-based technologies such as videotape or Internet, it is impossible to give an accurate count of total sites served).

Table 5 – Spring 1998
UCCSN Distance Education Enrollments

	# Courses	Enrollments					Total # Sites Served
		High School Students	K-12 Teachers	Other Nevadans	Total Headcount	**TOTAL FTE**	
CCSN	16	35	--	401	436	86.6	16(a)
GBC	57	20	--	762	782	128.0	13(b)
TMCC	11	40	--	510	550	102.0	9(c)
UNLV	16	27	174	331	532	136.9	15(d)
UNR	9	14	65	155	234	66.2	6(e)
WNCC	18	46	49	303	398	83.3	8(f)
Totals	128	182	288	2,462	2,932	603.0	50(g)

NOTE: FTE calculations based on 15 undergraduate credits equal 1 FTE and 8 graduate credits equal 1 FTE.

(a) CCSN: Alamo, Bunkerville, Caliente, Gabbs, Goldfield, Laughlin, Logandale, Mesquite, Moapa, Overton, Pahrump, Panaca, Pioche, Round Mountain, Silver Peak & Tonopah.

(b) GBC: Elko, Ely, Eureka, Winnemucca, Battle Mountain, Round Mountain, Austin, McDermitt, Wendover, Wells, TMCC, Jackpot, Owyhee.

(c) TMCC: Las Vegas, Elko, Ely, Eureka, Battle Mountain, Winnemucca, Incline Village, SNCAT, KNPB, and Internet.

(d) UNLV: Advanced Technologies Academy, Bonanza H.S., Eldorado H.S., Valley H.S., Nevada Power in Las Vegas, Laughlin, Pahrump, Elko, Reno, Overton, Boulder City, Henderson, Logandale, North Las Vegas, Pendleton (OR).

(e) UNR: Carson City, Elko, Las Vegas, Reno, Winnemucca & Wooster High School.

(f) WNCC: WNCC Carson, Carson H.S., WNCC Douglas, Douglas H.S., WNCC Fallon, Mineral County H.S., Pershing County H.S., WNCC Yerington.

(g) 50 unduplicated sites (given that many classes use non-site-based technologies such as videotape or Internet, it is impossible to give an accurate count of total sites served).

Table 6—Summer 1998
UCCSN Distance Education Enrollments

	# of Courses	Enrollments					# of Sites Served
		High School Students	K-12 Teachers	Other Nevadans	Total Headcount	Total FTE	
CCSN	16	27	--	325	352	73.3	16(a)
DRI	1	--	28	--	28	--	5(b)
UNLV	4	1	67	19	87	29.0	2+(c)
WNCC	7	3	--	95	98	18.5	5(d)
Totals	28	31	95	439	555	120.8	28+(e)

NOTE: Summer term is self-sustaining; FTE calculations based on 15 undergraduate credits equal 1 FTE and 8 graduate credits equal 1 FTE.

(a) CCSN: Alamo, Bunkerville, Caliente, Gabbs, Goldfield, Laughlin, Logandale, Mesquite, Moapa, Overton, Pahrump, Panaca, Pioche, Round Mountain, Silver Peak & Tonopah.
(b) DRI: Teachers came from Elko, Lander, Humboldt, Clark, Washoe, Carson, Lyon, Nye and Lincoln counties.
(c) GBC: Elko, Ely, Eureka, Winnemucca, Battle Mountain, Round Mountain, Austin, McDermitt, Wendover, Wells, TMCC, Jackpot, Owyhee.
(d) UNLV: Las Vegas and southern Nevada.
(e) WNCC: WNCC Carson, WNCC Douglas, WNCC Fallon, Mineral County H.S., WNCC Yerington.
(f) 28+ unduplicated sites (given that many classes use non-site-based technologies such as videotape or Internet, it is impossible to give an accurate count of total sites served).

Table 7 – Fall 1998
UCCSN Distance Education Enrollments

	# of Courses	Enrollments					# of Sites Served
		High School Students	K-12 Teachers	Other Nevadans	Total Headcount	Total FTE	
CCSN	25	61	--	964	1,025	210.3	16(a)
GBC	47	20	--	663	683	116.0	13(b)
TMCC	12	38	--	349	387	77.0	8(c)
UNLV	14	27	62	195	284	52.0	15(d)
UNR	9	51	90	155	296	78.0	9(e)
WNCC	18	56	8	427	491	96.7	7(f)
Totals	125	253	160	2,753	3,166	630.0	52(g)

NOTE: FTE calculations based on 15 undergraduate credits equal 1 FTE and 8 graduate credits equal 1 FTE.

(a) CCSN: Alamo, Bunkerville, Caliente, Gabbs, Goldfield, Laughlin, Logandale, Mesquite, Moapa, Overton, Pahrump, Panaca, Pioche, Round Mountain, Silver Peak & Tonopah.
(b) GBC: Elko, Ely, Eureka, Winnemucca, Battle Mountain, Round Mountain, Austin, McDermitt, Wendover, Wells, TMCC, Jackpot, Owyhee.
(c) TMCC: Dandini, Old Town Mall, Incline Village H.S., Battle Mountain, Ely, SNCAT, KNPB, and Internet.
(d) UNLV: Advanced Technologies Academy, Bonanza H.S., Eldorado H.S., Valley H.S., Nevada Power in Las Vegas, Laughlin, Pahrump, Elko, Reno, Overton, Boulder City, Henderson, Logandale, North Las Vegas, Pendleton (OR).
(e) UNR: Carson City, Elko, Fallon, Las Vegas, Minden, Reno, Sparks H.S., Winnemucca, & Wooster H.S.
(f) WNCC: WNCC Carson, Carson H.S., Douglas H.S., WNCC Fallon, Mineral County H.S., Pershing H.S., WNCC Yerington.
(g) 52 unduplicated sites (given that many classes use non-site-based technologies such as videotape or Internet, it is impossible to give an accurate count of total sites served).

Table 8
Enrollment Growth from SB204 (1996-97) to AB606 (1997-98)

	High School Students	K-12 Teachers	All Others	Totals
SB204 (Spring 1996 through Spring 1997)	1,206	899	1,912	4,017
AB606 (Fall 1997 through Fall 1998)	1,292	1,054	8,083	10,429

NOTES:
(a) Includes enrollment in credit courses, non-credit activities, and activities of K-12 partners (KLVX, Clark County School District).
(b) SB204 enrollments from Nevada Partners in Education (February 1997).
(c) Enrollments for Spring 1999 not yet available.

Although the period of comparison is not identical, it is likely that relationships among types of students served and growth patterns are accurately captured by Table 8. Therefore, despite this caveat, the table demonstrates the growth in interest in distance education that is being experienced in many Western states. Three additional areas are worth noting.

First, enrollment of high school students in college-level distance education courses has increased by 7%, which is a modest increase. The nominal growth in these enrollments is probably impacted by early difficulties with the mismatch between some high school students' abilities and college professors' expectations. This problem may be addressed by the movement to higher standards in K-12 education as well as better preparation of college professors for work with K-12 students. Also, courses offered by UCCSN institutions did not always attract the interest of high school students, which argues for a better way to identify those needs and interests. Last, if the aim of offering college-level courses to high school students was to increase the number of graduates going on to college, then perhaps college-level credit courses may have appealed only to those students who already saw themselves (and had prepared themselves) for college. To attract students who may not see themselves as "college material" or who may not think college is for them, college-level credit courses may not be attractive; therefore, other avenues to reach these students may be more effective. For example, UNLV has explored a number of non-credit activities that would appeal more broadly to K-12 students and may be an avenue of enticing more students to college. However, other approaches must be developed by the UCCSN to reach high school students.

On the other hand, enrollment of high school students in all types of college-level experiences (see Table 9) confirms that high school students are participating in the

various college opportunities offered through UCCSN campuses. This number is gratifying and confirms that the UCCSN is making progress toward increasing the number of high school students participating in college-level activities, through offering a range of choices suitable to different student needs.

Table 9
Headcount High School Students Enrolled in UCCSN College-Level Activities (1997-98)

	Institutional Enrollments	Totals
Community College High Schools		378
CCSN	274	
TMCC	104	
On college campus		1,716
CCSN	560	
GBC	269	
TMCC	216	
UNLV	55	
UNR	(est.) 230	
WNCC	386	
Distance Education		332
CCSN	55	
GBC	40	
TMCC	80	
UNLV	65	
UNR	24	
WNCC	68	
Non-credit activities (UNLV)	92	92
Totals		2,518

Second, the enrollment of K-12 teachers in UCCSN distance learning activities increased by 17%. This increase is perhaps due in part to teachers preparing themselves for the movement to standards-based education. It also underscores the role that distance education can play in contributing to the professional development of the state's K-12 teachers.

Third, the largest increase in distance learning enrollments is among "other Nevadans:" college students, adult workers, and those seeking professional development or retraining from UCCSN institutions. This number jumped from 1,912 in 1996-97 to 8,103 in 1997-98, a 320% increase. This group also grew to comprise the largest proportion (78%) of all those served by distance education. The growth in this group reflects national trends where adults increasingly look toward distance education to fulfill their needs for occupational training and professional development, at a time or place

that is convenient to them, and where those isolated by geography can access the education they need. In the future, this group is expected to continue to grow in number and also demand more services from distance education.

Infrastructure Enhancements

As AB606 directed, a primary purpose of these funds was extending the reach of the UCCSN's electronic network, or NevadaNet. NevadaNet is operated by System Computing Services (SCS). Highlights of these additions and improvements to NevadaNet in the reporting period include:

- Addition of 17 T-1 lines:
    - SCS-North to SCS-Elko
    - SCS-North to GBC-Ely
    - SCS-North to Tonopah
    - SCS-Elko to GBC-Ely
    - GBC-Ely to Eureka High School
    - Eureka High School to SCS-Elko
    - GBC Battle Mountain to GBC-Elko
    - SCS-North to WNCC Lovelock
    - GBC-Ely to Lund High School
    - GBC Winnemucca to SCS-Elko
    - SCS-North to GBC Battle Mountain
    - Panaca schools to CCSN Caliente
    - SCS-South to Panaca schools
    - GBC Ely to Panaca schools
    - WNCC Carson to SCS-North
    - WNCC Minden to WNCC Carson
    - WNCC Minden to Douglas High School

- Expansion of network through the installation of Digital Access Crossconnect Switches (DACS) at 11 sites:

  - GBC Ely DACS
  - GBC Battle Mountain DACS
  - Eureka High School DACS
  - Winnemucca expansion
  - SCS-Elko DACS
  - SCS-North DACS
  - Lund High School video and data access
  - Nye County School District in Tonopah video and data access
  - CCSN Caliente video and data access

- Enhancement of existing interactive video classrooms

  - Replacement of 2 Multipoint Control Units (MCUs); upgrade of 2 other MCUs
  - Replacement of 5 video classrooms
  - Addition of 2 interactive video conference rooms at Chancellor's Office (north & south)

- Enhancement of 11 interactive video classroom sites

- Addition of ATM switching at SCS hubs in North, South, Elko, and Ely

- Addition of new voice equipment at SCS hubs in North, South, and Elko.

It is worth mentioning that deployment of ATM (asynchronous transfer mode) technology improves the overall efficiency of the network. In the past, bandwidth had to be allocated to one purpose or another (data or video); if there were "space" available on the portion of bandwidth allocated to data, it could not be used by video applications. ATM technology allows the network to use all available bandwidth for either purpose (this is called "dynamic allocation"), depending on the needs or demands of network users. That means that as bandwidth is added to the network, it may be used more efficiently over time, and lessen the rate at which the system must acquire more bandwidth.

Figures A, B, and C illustrate these changes: figure A is a map of NevadaNet before SB 204, figure B is NevadaNet after SB 204, and figure C shows the additions funded by AB606, as of December 31, 1998.

Figure A
NevadaNet Before SB 204

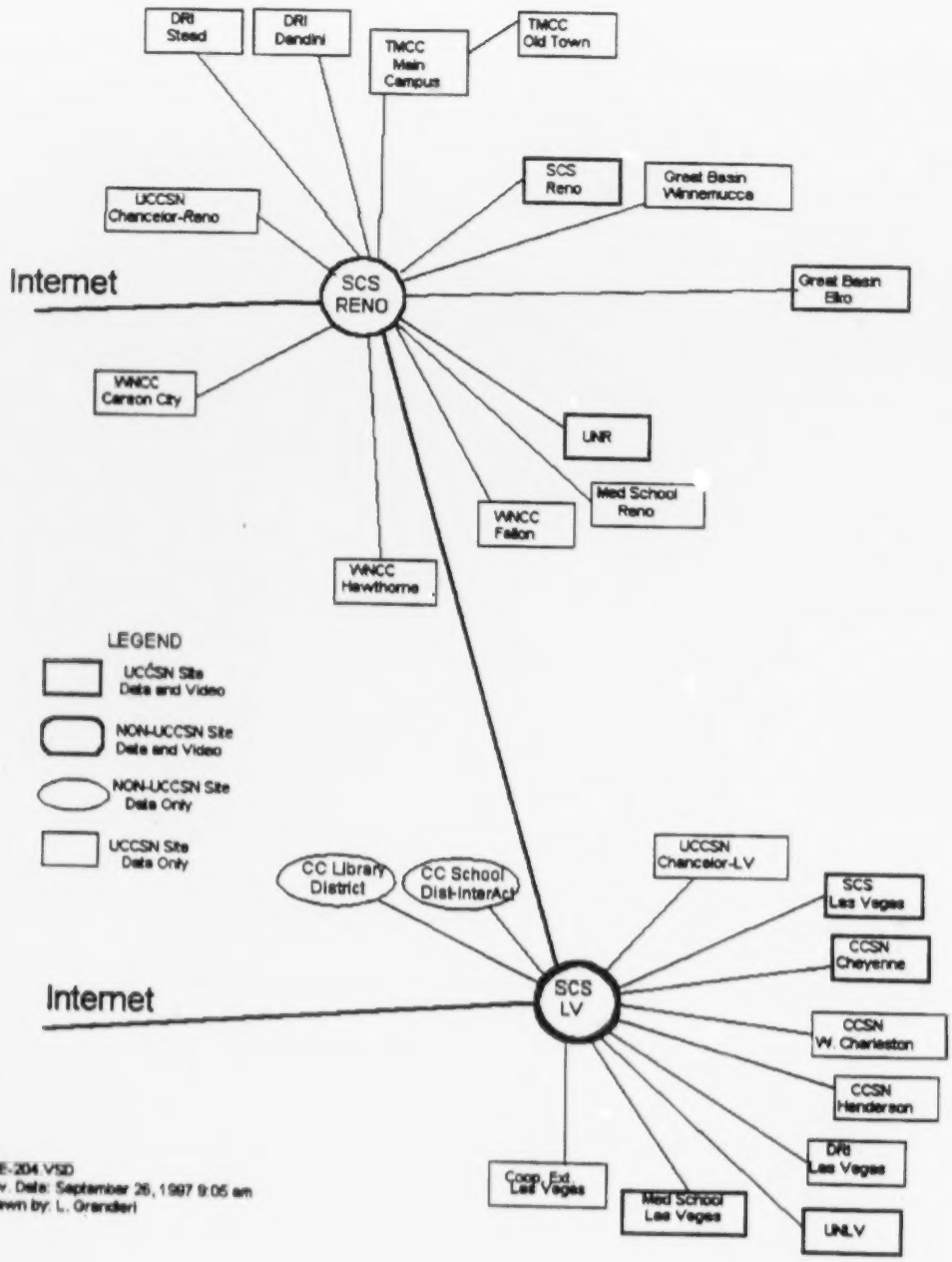

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Figure B
NevadaNet After SB 204

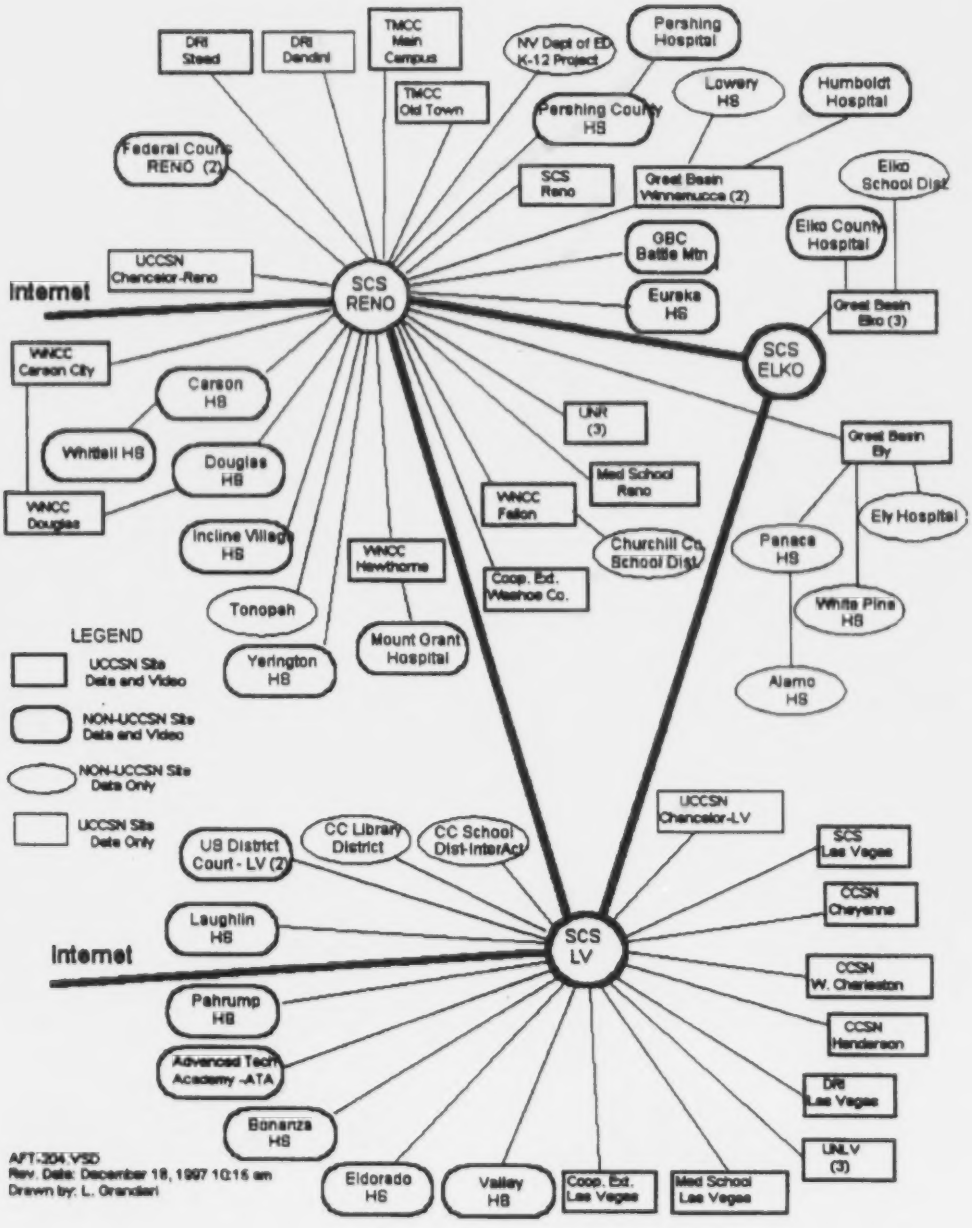

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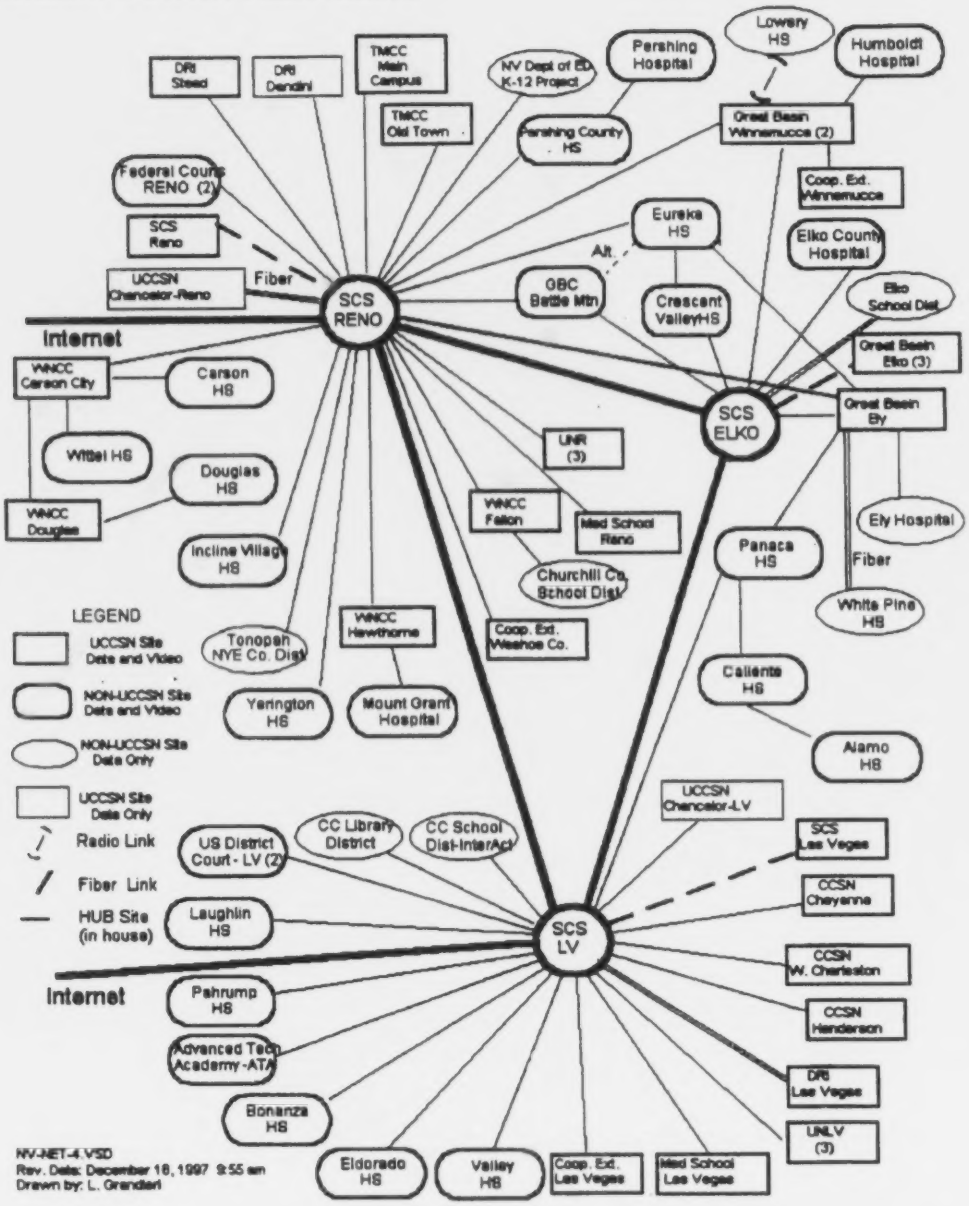
Figure C
NevadaNet with AB606-Funded Additions



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However, institutions also used AB606 funds to enhance the state's technical infrastructure, as detailed in Table 10.

Table 10
Institution Enhancements to Technical Infrastructure

Institution	Technical Enhancements
CCSN	1. Added interactive video classroom in Mesquite 2. Placed computers in Tonopah, Pahrump, Overton, Alamo, Caliente 3. Added network lines to Mesquite and Overton 4. Installed DACS in Panaca and Alamo schools
DRI	1. Added interactive video classroom in DRI-North 2. Added fax machines in interactive video classrooms at DRI-North and -South
GBC	1. Added interactive video classroom at GBC Elko 2. Added interactive video classroom at White Pine High School 3. Soundproofed interactive video classroom at White Pine High School
TMCC	1. Moved interactive video classroom at Incline Village to new site that will provide a dedicated classroom at Incline Village High School 2. Initiated pilot test of Correl desktop video system 3. NovaNet partnership with Washoe County School District to provide hard/software support to connect to Hug High School where a 40-computer lab was created for support of both high school and college students 4. Added interactive video classroom at Edison Way facility 5. Improved production ability at TMCC-Dandini site and Old Town Mall
UNLV	1. Added interactive video classrooms at Clark High School, Thurman White Middle School 2. Built sets in two UNLV classrooms to improve production quality and faculty use of equipment; added microphones and improved sound 3. Expanded capability to produce and edit videotapes to support expansion of asynchronous courses

Institution	Technical Enhancements
UNR	1. Added video communications link to/from Washoe County Schools to connect UNR, TMCC, and Washoe for teacher training, student homework assistance, etc. 2. Added teacher technology training lab for co-training of K-12 and university faculty 3. Digitized satellite uplink in conjunction with Cooperative Extension and KNPB Channel 5 to provide teacher training and other services
WNCC	1. Added second interactive video classroom at WNCC Fallon 2. Added interactive video classroom at WNCC Douglas 3. Added interactive video classroom at Fernley High School through ITFS (i.e., microwave) connection 4. Added interactive video classroom at Smith Valley High School 5. Enhanced lighting/audio in existing classrooms at WNCC Carson, WNCC Fallon, Carson High School, Mineral County High School, Pershing County High School 6. Enhanced acoustical materials for interactive video classroom at Mineral County High School 7. Acquired software for web-based classes for WNCC Fallon, WNCC Carson 8. Acquired satellite downlink descrambler for Carson City 9. Moved and enhanced interactive video classroom at WNCC Carson

Credit and Non-Credit Activities

Table 11 provides a detailed listing of the courses offered during this reporting period by the participating institutions; Table 12 provides a listing of non-credit activities during the same time period, also funded in part by AB606. These courses comprise a mix of technologies, including interactive video, videotape, and Internet. Often, high school students enroll in the same courses that other Nevadans (which include college students) take, and thus many courses appear in each category. This listing is intended to provide a sense of the range of services provided to high school students, K-12 teachers, and other Nevadans, and is not an unduplicated list of courses offered in this timeframe.

Table 11
Distance Education Credit Courses Offered (Summer 1997 through Fall 1998)

Institution/Audience	Course Title
Community College of Southern Nevada	
High school students	American Sign Language I American Sign Language II The Solar System Introduction to Business Business Communication I Business Law Introduction to Teaching the Young Child Composition I Composition II Technical Communications Introduction to Short Stories Introduction to Poetry Nevada History Introduction to Health Professions Research on the Internet Elementary Algebra Intermediate Algebra Fundamentals of College Math Music Appreciation Reasoning/Critical Thinking Introduction to American Politics General Psychology College Study Skills Principles of Sociology Social Problems Introduction to Marriage and Family

CCSN CONT. Other Nevadans	American Sign Language I, II The Solar System Introduction to Business Business Communication I Business Law Introduction to Concepts of CardioRes Introduction to Concepts of CardioRes EQ Introduction to Teaching the Young Child Composition I, II Technical Communications Introduction to Short Stories Introduction to Poetry Nevada History Pathophysiology Introduction to Health Professions Research on the Internet Elementary Algebra Intermediate Algebra Fundamentals of College Math Music Appreciation Reasoning/Critical Thinking Introduction to American Politics General Psychology College Study Skills Principles of Sociology Social Problems Introduction to Marriage and Family
Great Basin College	
High school students **GBC CONT.**	Bookkeeping I, II Elementary Accounting I, II Introduction to Anthropology Survey of Art History II Human Biology General Biology I Human Anatomy and Physiology I Business Law I Introduction to Business Principles of Sales Introduction to Marketing Elementary Concepts of Chemistry General Chemistry I, II Microcomputer Accounting Systems Accessing the Internet Exploring the Internet Introduction to Spreadsheets

High school students (continued)	Introduction to WordPerfect Introduction to Windows Computer Literacy Executive Office Procedures Introduction to Database Management Introduction to Presentation Software Speedwriting BASIC Programming Language I Introduction to Computer Applications Introduction to Construction Management Building Construction I Blueprint Reading and Specifications Introduction to the Uniform Building Code Building Cost, Estimation, and Profit Analysis Surveying I Construction Planning and Scheduling Construction Law & Contracts Introduction to Criminal Justice Probation and Parole Principles of Macroeconomics Principles of Microeconomics Current Economics Issues Principles of Statistics II Introduction to Education Composition I, II Technical Communications I, II Writing Workshop I, II, III World Literature I, II Man and the Environment Physical Geography Individual and the Family Nevada History United States History I – To 1865 Introduction to Loss Control Management Loss Control Engineering and Technology Basic Mathematics Elementary Algebra Technical Mathematics I Intermediate Algebra College Algebra Fundamentals of College Mathematics Precalculus I, II Calculus I Environmental Law Music Appreciation History of Rock Music Medical Terminology Introduction to Occupational Safety and Health General Industry Safety

GBC CONT. High school students (continued)	Introduction to Industrial Hygiene Introduction to Hazardous Materials Management Hazardous Waste Site Safety Theory and Practice of Accident Investigation Religion in American Life The Nevada Constitution Principles of American Constitutional Government Special Topics in Political Science Principles of Sociology Introduction to Marriage and the Family Construction Equipment C++ Quickbooks Web Page Building CRJ Community Relations
K-12 teachers	Bookkeeping I, II Introduction to Anthropology Survey of Art History II Human Biology General Biology I Human Anatomy and Physiology I Business Law I Financial Planning & Investments Introduction to Business Small Business Management Principles of Sales Introduction to Marketing Elementary Concepts of Chemistry General Chemistry I, II Microcomputer Accounting Systems Accessing the Internet Exploring the Internet Introduction to Spreadsheets Introduction to WordPerfect Special Topics: Computer Office Technology Introduction to Windows Computer Literacy Executive Office Procedures Introduction to Database Management Introduction to Presentation Software Speedwriting BASIC Programming Language I Introduction to Computer Applications Introduction to Construction Management Building Construction I Blueprint Reading and Specifications Introduction to the Uniform Building Code Building Cost, Estimation, and Profit Analysis Surveying I

GBC CONT. K-12 teachers (Continued)	Construction Planning and Scheduling Construction Law & Contracts Introduction to Criminal Justice Probation and Parole Principles of Macroeconomics Principles of Microeconomics Current Economics Issues Principles of Statistics II Principles of Child Guidance Introduction to Education Information Technology in Teaching Composition I, II Technical Communications I, II Writing Workshop I, II, III World Literature I, II Man and the Environment Environmental Regulations Physical Geography Individual and the Family Nevada History United States History I – To 1865 Introduction to Loss Control Management Loss Control Engineering and Technology Basic Mathematics Elementary Algebra Technical Mathematics I Intermediate Algebra College Algebra Fundamentals of College Mathematics Precalculus I, II Calculus I Environmental Law Music Appreciation History of Rock Music Medical Terminology Introduction to Occupational Safety and Health General Industry Safety Introduction to Industrial Hygiene Introduction to Hazardous Materials Management Hazardous Waste Site Safety Theory and Practice of Accident Investigation Inspection Methods Construction Safety Safety Program Management Religion in American Life The Nevada Constitution Principles of American Constitutional Government Special Topics in Political Science Real Estate Principles I, II

GBC CONT. K-12 teachers (Continued)	Principles of Sociology Introduction to Marriage and the Family Construction Equipment C++ Quickbooks Web Page Building CRJ Community Relations
Other Nevadans	Bookkeeping I, II Introduction to Anthropology Survey of Art History II Human Biology General Biology I Human Anatomy and Physiology I Business Law I Financial Planning & Investments Introduction to Business Small Business Management Principles of Sales Introduction to Marketing Elementary Concepts of Chemistry General Chemistry I, II Microcomputer Accounting Systems Accessing the Internet Exploring the Internet Introduction to Spreadsheets Introduction to WordPerfect Special Topics: Computer Office Technology Introduction to Windows Computer Literacy Executive Office Procedures Introduction to Database Management Introduction to Presentation Software Speedwriting BASIC Programming Language I Introduction to Computer Applications Introduction to Construction Management Building Construction I Blueprint Reading and Specifications Introduction to the Uniform Building Code Building Cost, Estimation, and Profit Analysis Surveying I Construction Planning and Scheduling Construction Law & Contracts Introduction to Criminal Justice Probation and Parole Principles of Macroeconomics

GBC CONT. Other Nevadans (Continued)	Principles of Microeconomics Current Economics Issues Principles of Statistics II Principles of Child Guidance Introduction to Education Information Technology in Teaching Composition I, II Technical Communications I, II Writing Workshop I, II, III World Literature I, II Man and the Environment Environmental Regulations Physical Geography Individual and the Family Nevada History United States History I – To 1865 Introduction to Loss Control Management Loss Control Engineering and Technology Basic Mathematics Elementary Algebra Technical Mathematics I Intermediate Algebra College Algebra Fundamentals of College Mathematics Precalculus I, II Calculus I Environmental Law Music Appreciation History of Rock Music Medical Terminology Introduction to Occupational Safety and Health General Industry Safety Introduction to Industrial Hygiene Introduction to Hazardous Materials Management Hazardous Waste Site Safety Theory and Practice of Accident Investigation Inspection Methods Construction Safety Safety Program Management Religion in American Life The Nevada Constitution Principles of American Constitutional Government Special Topics in Political Science Student Leadership in Higher Education Real Estate Principles I, II Principles of Sociology Introduction to Marriage and the Family Construction Equipment C++

GBC CONT. Other Nevadans (Continued)	Quickbooks Web Page Building CRJ Community Relations
Truckee Meadows Community College	
High school students	Introduction to Anthropology Introduction to Criminal Justice Art Appreciation Principles of American Constitutional Government Macro Economics Micro Economics Discovering Psychology Abnormal Psychology State and Local Governments Calculus I Calculus II Calculus III
Other Nevadans	Introduction to Anthropology Introduction to Criminal Justice Art Appreciation Principles of American Constitutional Government Macro Economics Micro Economics Discovering Psychology Abnormal Psychology State and Local Governments Calculus I Calculus II Calculus III
University of Nevada, Las Vegas	
High school students	Art in Context Survey of Art History Composition I Composition II Humans and the Environment Lodging Operations General psychology People's Law School Physical Geography Introduction to Hospitality Industry American State and Local Government
K-12 teachers	Literacy Instruction Nevada School Law Update Special Problems in Administration Literacy Instruction in Diverse Classrooms Testing and Evaluation in ESL

UNLV CONT. Other Nevadans (Continued)	Teaching Phonics and Word Recognition Strategies Nevada School Law Literacy Instruction and Assessment Substance Abuse Special Education Techniques for Regular Education Special Education Practicum Family Literacy Best Practices in Special Education Hands on Science for Teachers Exploring the Internet Theory in Teaching English as a Second Language (TESL) Perinatal Substance Abuse
Other Nevadans	Conceptual Bases of Nursing Physical Assessment Economic Analysis Tertiary Prevention Change Process Skills Legal Environment for Business Marketing Management Primary Prevention Change Process Gaming Regulation Control Political and International Terrorism Quantitative Economics Statistical Methods in Psychology Introduction to Casino Management Introduction to Criminal Justice Casino Operations Management Employee Appraisal and Evaluation Counseling the Older Adult Principles of Health Physics Art in Context Survey of Art History Composition I Composition II Humans and the Environment Lodging Operations General Psychology People's Law School Physical Geography Introduction to Hospitality Industry Substance Abuse Perinatal Substance Abuse
University of Nevada, Reno	
High school students	Introduction to the College Experience Access to Internet Resources Music Appreciation Introduction to Psychology as a Social Science

UNR CONT. K-12 teachers	Teaching Reading to Older Students: Diagnosis Program/Behavior Management in Special Education Evaluation of Classroom Learning Shakespeare: Tragedies and Histories Selection and Acquisition of Library Materials Teaching Reading to Older Students Substance Abuse Counseling Teaching Writing in the Public Schools
Other Nevadans	Managing Computer-Based Information Resource Systems Issues in Information Technology: Computers and Society Seminar in Finance: Investments Organization and Interpersonal Behavior Shakespeare: Tragedies and Histories Selection and Acquisition of Library Materials Operations Management Special Topics: Entrepreneurship Principles of Electromagnetic Compatibility Marketing Principles Comparative Management Human Resource Management Substance Abuse Counseling
Western Nevada Community College	
High school students	Anatomy & Physiology I Composition I Composition II Principles of Sociology Introduction to Teaching Young Children Judeo-Christian Tradition PC Operations Survey of American Constitutional History Introduction to Human Evolution Physical Geography Peoples and Cultures of the World Art Appreciation General Biology European Civilization I Introduction to Administration of Justice Lifespan and Human Development First Year Spanish I Introduction to Internet PC Operations Introduction to Windows 95 Precalculus Mathematics I
K-12 Teachers	Teacher Certification Process Education of the Exceptional Child Special Topic: Sink the Sub

WNCC CONT.	Methods of Classroom Management Management Methods for Subs
Other Nevadans	Basic Writing III Lifespan & Human Development Intermediate Algebra World Religions General Biology Anatomy & Physiology I Principles of Microeconomics European Civilization I Introduction to Humanities
	Principles of Management Foundations of Nursing Science Foundations of Pharmacology in Nursing Health Assessment Judeo-Christian Tradition First Year Spanish I Introduction to Teaching Young Children Composition I, II Principles of Sociology Sign Language I Introduction to Human Evolution PC Operations Interpersonal Communication/Conflict Resolution European Civilization I, II Survey of American Constitutional History Childbearing/Childrearing Clinical Nursing Across the Lifespan Medical/Surgical Clinical Nursing Pre-school Curriculum Women and Literature Job Coaching/Placement Specialist Training Elementary Algebra Fundamentals of College Math Principles of American Constitutional Government Peoples and Cultures of the World Art Appreciation General Biology I Parent/Caregiver Relationships Alterations in Childbearing/Childrearing Advanced Clinical Nursing I American State and Local Government Western Tradition I Introduction to administration of Justice Environments for Infants and Toddlers World Literature I Lifespan and Human Development Introduction to Internet PC Operations

WNCC CONT.	Introduction to Windows 95 Precalculus Mathematics

Table 12
Distance Education Non-Credit Activities (Summer 1997 to Fall 1998)

Institution/Audience	Description
Desert Research Institute	
K-12 teachers	Created "Environment 101" science kits on (a) Water Quality and Air Pollution and (b) Climate Change and provided copies of the kits to all 17 school districts
Middle & high school teachers & students	Coordinated global lab research experience for teacher-student teams
Truckee Meadows Community College	
K-12 teachers	Provided seminar for Incline Village high school faculty on technology use in the classroom
Other Nevadans	Provided updated occupational training through the School of Medicine statewide
University of Nevada, Las Vegas	
High school students	• **Social Science Forums** were held between faculty content experts and high school students over the interactive video network to excite students about learning social sciences and to expose them to UNLV faculty • **GLOBE** Provided interactive sessions for participants in the GLOBE project, allowing faculty scientists opportunities to work with teachers and improve the ability of students around the world to collect valid and consistent data on weather and environmental conditions. • **Introduction to Engineering Pilot Program** Provided video classes to Advanced Technologies Academy which do not carry college credit, but do integrate college-level concepts into the high school curriculum; program exposes potential engineering students to the curriculum and encourages them to take appropriate prerequisites • **Fly on the Wall** In partnership with Clark County School District and UNLV TV, a television show was created based on the concept of the Social Science Forums. Students from local high schools host the show and dialog with various experts in the field.

Institution/Audience	Description
UNLV CONT. K-12 teachers	• **Science Fair** Provided training to K-12 teachers who wanted to participate in the Science Fair program • **Economic Education for Educators** Provided workshop to K-12 teachers on how to teach about the stock market • **Workshops for In-service Teachers** Hands-on workshops demonstrated the use of compressed video in the K-12 environment; K-12 teachers can experience the environment and brainstorm potential uses in their classes
Other Nevadans	• **AmericaReads** Provided training for volunteers in AmericaReads and developed series of videotapes for tutors working with K-12 students with reading deficiencies. Training of tutors becomes more cost-efficient and effective. Copies of videotapes requested by others across the nation. • **People's Law School** UNLV partnered with the Nevada Trial Lawyers' Association to tape for rebroadcast the People's Law School on UNLV TV. Tapes are integrated into 1-credit course on legal issues that is delivered asynchronously
University of Nevada, Reno	
High school students	Introduction to the College Experience
Other Nevadans	Principles of Electromagnetic Compatibility

Partnerships Forged

As the K-16 priorities outlined earlier indicated, AB606 has been about forging partnerships with K-12, among UCCSN institutions, and among higher education, other state agencies, and other private entities. Examples of these new partnerships include:

- CCSN and DRI are collaborating on developing a "science truck" that can bring science labs to rural students;
- CCSN, in concert with the Attorney General's office and Nye County, is working on bringing Internet services to Amargosa Valley;
- DRI has formed a K-12 Liaison Board made up of K-12 teachers (one from each county) to provide feedback to DRI on potential new initiatives and to serve as a "mentor teacher" to teachers in their home districts;
- DRI, CCSN, and KLVX worked together to create Environment 101 kits on climate change, water quality, and air pollution;
- TMCC and Washoe County School District are developing an accelerated program at Incline Village High School to offer dual-credit and college elective courses (e.g., foreign languages, mathematics, science, electives) to juniors and seniors as part of the honors program;

- TMCC and Washoe County School District are also exploring the scheduling of Advanced Placement courses via distance education at Gerlach High School and other schools in the Rural Alliance;
- TMCC and Washoe County School District are partnering with NovaNet to equip a computer lab and to offer self-paced instruction during the school day for high school students showing deficiencies in math and English and to make the lab available in the evening for college students interested in self-paced instruction for selected college courses;
- TMCC, WNCC, GBC, and KNPB Channel 5 have collaborated in planning for offering "Going the Distance" telecourses that can lead to an associate of arts degree;
- TMCC and Sierra Nevada Community Access Television (SNCAT) have partnered to provide class delivery over TCI Cablevision and Media One Cable to high school students and college students;
- TMCC and AHEC partnered to provide training through the School of Medicine to health professionals in the field;
- UNLV, in a partnership with AmericaReads, developed a series of videotapes to train tutors working with K-12 students with reading deficiencies;
- In partnership with the Nevada Trial Lawyers' Association, UNLV taped and rebroadcast sessions of the People's Law School;
- UNLV in partnership with Clark County School District, a television show was created based on the concept of the Social Science Forums where students from local high schools host the show and dialog with various experts in the field;
- UNR and Washoe County School District jointly developed an in-service and pre-service technology training center for teachers; completed a consortium-based video distribution network; and collaborated for delivery for college readiness courses to two local high schools;
- WNCC has active partnerships with area schools and installed interactive video classrooms at Smith Valley High School and an ITFS (microwave) connection to an interactive video classroom at Fernley High School; earlier partnerships resulted in interactive video classrooms at Mineral County High School, Pershing County High School, Carson High School, Douglas High School, and Yerington High School; and
- WNCC, CCSN, GBC, and TMCC partnered on a grant application to School-to-Careers to develop distance education solutions to sharing allied health courses more widely across campuses and to develop courses for K-12 students to encourage them to consider allied health careers.

Quality in Distance Education

As any institution tackles a new endeavor, a period of experimentation ensues. Successes are as likely as failures, and both provide fertile ground for useful improvements and a growing sense of understanding of what works and what does not. This section is devoted to detailing a number of quality improvements initiated by the institutions during the reporting time period as well as discussing how quality in distance education can be measured.

An important development in the arena of quality assurance was the development of the Western Cooperative for Educational Telecommunications' (WCET) "Principles of Good Practice for Electronically-Delivered Academic Degree and Certificate Programs" (see the Appendix or http://www.wiche.edu/Telecom/projects/principles.htm). These principles have subsequently been adopted by each of the regional accrediting associations as well as other organizations interested in reviewing and assessing the quality of distance learning programs. Recently, the UCCSN Board of Regents also adopted these principles as guides to distance education within the system. In addition, there are a number of efforts (e.g., WCET and Council for Higher Education Accreditation) aimed at developing ways of knowing whether institutions actually implement and practice these principles.

To ensure the "Principles of Good Practice" are followed, efforts to continuously improve quality in distance education have been initiated by all of the campuses. These efforts include a) faculty development opportunities, b) student services, and c) policy or procedure changes. Examples include:

Faculty Development

- CCSN provides workshops in instructional design for web-based learning, using MOO/chat spaces for office hours and collaboration, incorporating e-mail into instruction, and using WebCT software for developing course materials;
- TMCC offers a certificate of achievement for those faculty completing a special training sequence for technology use in the classroom and in distance education;
- UNLV provides workshops for faculty teaching distance education courses; instructors are given a manual highlighting best practices, directions for operation of equipment, and other advice; through the semester, faculty are provided with one-on-one consultations; staff also produce a newsletter with strategies for improving the effectiveness of distance education courses;
- UNR has prepared an "instructor's manual" for teaching over the interactive video network and it conducts a 3-hour orientation session for faculty new to distance education; the faculty also work with an instructional designer to prepare an "extended syllabus" that provides a detailed outline of the course;

- WNCC provides semi-annual training for both faculty teaching with interactive video and facilitators responsible for distant classrooms.

Student Services

- CCSN is developing tutorial services for distance students similar to those for on-campus students;
- CCSN has added web-based registration for courses;
- TMCC is developing Internet delivery of library services and is also developing desktop video applications for student counseling and financial aid services to Incline Village High School and other TMCC satellite locations;
- UNLV provides student services through a program manager, who is responsible for registering students, providing textbooks and other course materials, advising, and troubleshooter; Internet accounts are provided students needing them so they can access the UNLV library database and order library materials;
- UNLV has been involved in a year-long project to redesign student services so they be more easily accessed by students learning at a distance or on campus;
- UNR provides assistance with course registration through the Division of Continuing Education so that distance students can deal directly with a person; advising is also provided in person via a travelling advisor as well as through telephone and e-mail;
- UNR makes textbooks and Extended Syllabi available for purchase in the student's community and library materials are made available on site or through the assistance of a local librarian;
- WNCC provides financial aid advisement each year to students in rural Nevada via the interactive video network;
- The UCCSN will engage in a review of existing student services available online across all institutions, evaluate current models of providing student services online, and identify those services most necessary to address the expected increase in web-based education and develop a plan to provide these services.

Policy/Procedure Changes

- UNLV has appointed a Distance Education Policy Committee of faculty and key staff to review and adapt existing policies as well as recommending new policies; the committee has developed a mission and goals statement, drafted the prospectus submitted to the Commission on Colleges requesting approval for UNLV's distance education program; approved the adoption of the WCET "Principles of Good Practice," and developed an intellectual property policy.
- UNR has instituted a "make-up exam policy" as a result of distance education, where the student must pay $10 per hour to have a make-up exam proctored;

- WNCC's policy has been to provide technical support for interactive video classes: for 5 or more students, a paid facilitator is provided; for 3 or 4 students, one student can receive a tuition scholarship for providing facilitator services; for 1 or 2 students, WNCC trains the students to operate the equipment themselves;
- WNCC provides a stipend of $200 per credit for instructors willing to offer their classes through a distance learning method.

Measuring quality in distance education is a more difficult endeavor, complicated by not having good definitions for quality in more traditional higher education nor measures for student learning. Yet because it is new – and its value questioned – a large body of research on distance education has been done. In comparisons between traditional courses and different types of distance education courses, these studies found there were "no significant differences" in the outcomes for students (see http://tenb.mta.ca/phenom/phenom.html). In other words, students in both environments learned, and while individual students may prefer and succeed in one environment over another, one may conclude that distance education students were receiving as good an education as their main-campus counterparts.

While there is much research to be done to maximize student learning as efficiently as possible, the UCCSN campuses can have confidence that distance education increases access to higher education with no diminishment of quality (and perhaps for some students for which online education is personally exciting, an improved education). However, it is necessary that those involved in distance education in Nevada continue to make quality improvements and to monitor student performance. There are two efforts that will help us do this. The Committee on Higher Education Accreditation (CHEA) is developing a new accreditation process for distance learning that will focus on quality definitions and assessment tools. Within the Higher Education Reauthorization Act, the Western Governors University has been granted status as a "demonstration site" to determine what new definitions of quality may be more useful for students learning through these non-traditional means.

System-Level Activities

During Fall 1998, distance education directors at all UCCSN institutions were busy on several initiatives. The cost, quality, and services provided by external contractors were evaluated as were several courseware packages for developing web-based courses for the Internet. A workshop on recent developments with the Western Governors University was hosted by the Chancellor, and was attended by UCCSN institutions, the Nevada Department of Education and Clark County School District, a number of government agencies (Attorney General's Office, State Library, Department of Employment, Training and Rehabilitation), and legislative staff. Also, Fall 1998 marked the first joint UCCSN Distance Education Catalog, including all distance education courses by all delivery methods.

Spring 1999 is also a busy time. A Spring 1999 Distance Education Catalog has been produced and can be viewed on the web at http://www.nevada.edu/disted.html. Work has begun on the development of a web-based catalog that will allow students to search for courses by discipline, site, delivery method, etc. Implementation of the searchable, web-based catalog is slated for Fall 1999.

In January 1999, an Electronic Student Services Forum was held with representatives from all UCCSN institutions and included student services, distance education, and computing personnel. Results from a recent study conducted by the Western Cooperative on Educational Telecommunications on best practices in electronic student services were presented and development of a tentative plan for offering more student services on-line is underway. Also, the distance education community is developing approaches for increasing faculty awareness and comfort with the new delivery technologies (such as the web). A conference focusing on faculty and staff development is targeted for spring 2000. Additional systemwide initiatives are likely as needed improvements to be made in our services are identified.

FINANCIAL REPORT

This section highlights information on a number of financial issues of interest to the Legislature. These include a profile of the amount of a) non-AB606 funds provided by UCCSN institutions to support AB606 activities during the same time period (Table 13) and b) external funds leveraged through AB606 (Table 14).

Non-AB606 Funds Provided by Institutions

At the initial stages of AB606, it was clear to institutions that non-AB606 funds would be required in order to support the activities outlined in the original legislation. Table 13 captures the amount of non-AB606 funds each institution contributed to support the activities included in this report. The information in the table is a compilation of quarterly reports submitted to System Administration.

Table13
Non-AB606 Funds Contributed for July 1997-June 1998

	Personnel-1	Personnel-2	In-State Travel	Operating	Equipment	Total
CCSN	$49,601	$19,758	--	--	--	$69,359
DRI	$11,198	$8,044	--	$3,416	--	$22,658
GBC	--	$62,246	--	--	--	$62,246
SCS	$190,555	--	$6,024	--	--	$196,579
TMCC	$82,200	$54,000	--	--	--	$136,200
UNLV	$218,800	--	$750	$7,000	--	$226,550
UNR	$81,521	$5,230	$2,994	$5,507	--	$95,252
WNCC	$22,366	$18,493	$476	$624	--	$41,959
Totals	$656,241	$167,771	$10,244	$16,547	--	$850,803

Personnel-1: On-going UCCSN employees.
Personnel-2: Site coordinators, temporary hires.

This table reveals two trends. First, although the Legislature funded equipment and operating through AB606, more support for personnel to develop and conduct distance education programs is necessary. Second, institutions have supported distance education activities through internal reallocations to the amount of $850,803, or a match of approximately 50% of AB606 funds.

External Funds Leveraged Through AB606

One advantage of having AB606 funding was the likelihood that state funds could be leveraged with external funding opportunities, thereby increasing the total amount of funding available to distance education in the state. This occurred in the following cases compiled in Table 14.

Table 14
External Funds Leveraged by AB606

	External Grants	
Institution	($$)	Source of Funds
DRI	$ 23,000	Eisenhower Foundation supports Science Box class for teachers
	$ 30,000	Christa McAuliffe Fellowship Program to fund the "Global Environment Studies Laboratory" for K-12 teachers
	$600,000	NSF Principles of Research (will support K-12 teachers and students)
TMCC	$ 18,000	In-kind access on SNCAT to deliver 20 hours of instruction per week (will increase to 30 hours per week in Spring 1999)
UNR		Digitization of Reno satellite uplink
	$ 20,000	KNPB (plus extensive technical staff support)
	$ 50,000	ADEC (matching for uplink decoder plus additional $30,000 for satellite downlinks at K-12 schools)
WNCC, GBC, CCSN & TMCC	$ 82,527	This consortium received a School-to-Careers grant to promote distance education use in allied health programs and identify courses for delivery to K-12.

NEXT STEPS

1999-2001 Budget Request

The 1999-2001 UCCSN Budget Request for Distance Education is built upon an evaluation of student needs, lessons learned, and appropriate directions for distance education. It requests $3.85 million – a 10% increase over the AB606 appropriation of $3.5 million – to add new programs (described next) as well as add necessary technical enhancements in specific locations. The Budget Request includes specific goals and performance measures, including a commitment to nearly double enrollments in distance education courses if institutions are granted flexibility on the use of these funds.

Program Development

State funding through SB204 and AB606 has been invaluable for building the system's technical infrastructure and supporting the initiation of new services to K-12 and to new students. The next challenge facing the UCCSN will be the identification, development, and coordination of new distance education degree programs needed by K-12 and other Nevadans.

The 1999-2001 UCCSN Budget Request for Distance Education identifies the new programs to be developed. The UCCSN institutions are committed to collaborating on the development and offering of programs in the following areas.

K-12 Focus:
- K-12 teacher professional development,
- College courses for high school students,

Occupational Training:
- allied health,
- criminal justice,
- occupational safety and health,
- vocational rehabilitation;

General Education:
- a distance-education associate of arts,
- upper-division bachelor's programs in social science and general studies;

Shared Courses in:
- addiction counseling, and
- political science.

The budget request also includes funding for a statewide needs assessment to guide further development of new programs within the system.

Personnel

Distance education depends upon the efforts of many persons, some with very special expertise. To an even greater extent than more traditional higher education courses, the success of distance education courses depends upon:

- faculty trained to design, develop, and deliver distance education;
- instructional designers with expertise in technology to help faculty;
- student services redesigned and offered electronically;
- library materials available on-line;
- help desk staff available at all times to answer questions;
- facilitators and proctors working at distant sites; and
- technicians who can operate the equipment reliably and consistently.

One important element of the 1999-2001 Budget Request is a plea for the state to grant institutions' flexibility on the use of state appropriations for personnel or operating. Given this flexibility, the UCCSN can meet the goals set within the Budget Request. Restrictions on the use of state funds for necessary personnel will likely hamper the ability to serve students well.

Infrastructure Enhancements

The UCCSN Network – NevadaNet – has ably served the needs of distance education programs thus far. However, NevadaNet does present constraints to growth both in the number of interactive video classes that can be held concurrently on the same line and in the efficiency of the network's use of line capacity. Also, at some sites, interactive video classrooms are used between 30 and 40 hours per week, indicating the need to add an additional interactive video classroom at that site.

The UCCSN budget request for System Computing Services includes two enhancements that are essential to support the expansion of distance education in Nevada. First, backbone capacity of NevadaNet – the line capacity among Reno, Las Vegas, and Elko – must be expanded. Second, ATM switching must be completed at other sites on the network, allowing the network to allocate bandwidth to video or data depending on the needs of the moment (current technology must dedicate lines to one purpose or another) and thus allowing the network to use its capacity more efficiently.

The UCCSN Budget Request for Distance Education includes a number of enhancements directed to support distance education, including enhanced access to the Internet and the addition of seven new interactive video classrooms. Currently, the system is served by two links to the Internet, one in/outbound from Reno and the second in/outbound from Las Vegas. In each case, current usage of these lines reaches 97% of capacity during several hours of the day, indicating the need to add a second connection from Reno and from Las Vegas to address the expected increase in Internet usage from distance education.

It is clear that making technical enhancements to the network will be an on-going obligation as will adding Internet capacity. However, distance education will increasingly use a variety of delivery methods (e.g., satellite, the Internet, public television, desktop video) to augment the interactive video network in an effort to find the best means of reaching students and providing them with the best educational experience we can design.

Commitment

The UCCSN is committed to expanding its services to students through its distance education programs. To do this, the commitment of the state is also needed through its appropriations and the flexibility it grants to the UCCSN on the use of state funds. Given such flexibility, the UCCSN commits to meeting the goals set forth in the 1999-2001 Budget Request.

APPENDIX
WCET "Principles of Good Practice"

Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs

These Principles are the product of a Western Cooperative for Educational Telecommunications project, "Balancing Quality and Access: Reducing State Policy Barriers to Electronically Delivered Higher Education Programs." The three-year project, supported by the U.S. Department of Education's Fund for the Improvement of Postsecondary Education, is designed to foster an interstate environment that encourages the electronic provision of quality higher education programs across state lines. The Principles have been developed by a group representing the Western states' higher education regulating agencies, higher education institutions, and the regional accrediting community.

Recognizing that the context for learning in our society is undergoing profound changes, those charged with developing the Principles have tried not to tie them to or compare them to traditional campus structures. The Principles are also designed to be sufficiently flexible that institutions offering a range of programs -- from graduate degrees to certificates -- will find them useful.

Several assumptions form the basis for these Principles:

- The electronically offered program is provided by or through an institution that is accredited by a nationally recognized accrediting body.
- The institution's programs holding specialized accreditation meet the same requirements when offered electronically.
- The "institution" may be a traditional higher education institution, a consortium of such institutions, or another type of organization or entity.
- These Principles address programs rather than individual courses.
- It is the institution's responsibility to review educational programs it provides via technology in terms of its own internally applied definitions of these Principles.

CURRICULUM AND INSTRUCTION

- Each program of study results in learning outcomes appropriate to the rigor and breadth of the degree or certificate awarded.
- An electronically offered degree or certificate program is coherent and complete.

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- The program provides for appropriate real-time or delayed interaction between faculty and students and among students.

- Qualified faculty provide appropriate oversight of the program electronically offered.

INSTITUTIONAL CONTEXT AND COMMITMENT

Role and Mission

- The program is consistent with the institution's role and mission.

- Review and approval processes ensure the appropriateness of the technology being used to meet the program's objectives.

Faculty Support

- The program provides faculty support services specifically related to teaching via an electronic system.

- The program provides training for faculty who teach via the use of technology.

Resources for Learning

- The program ensures that appropriate learning resources are available to students.

Students and Student Services

- The program provides students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technological competence and skills, technical equipment requirements, availability of academic support services and financial aid resources, and costs and payment policies.

- Enrolled students have reasonable and adequate access to the range of student services appropriate to support their learning.

- Accepted students have the background, knowledge, and technical skills needed to undertake the program.

- Advertising, recruiting, and admissions materials clearly and accurately represent the program and the services available.

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Commitment to Support

- Policies for faculty evaluation include appropriate consideration of teaching and scholarly activities related to electronically offered programs.

- The institution demonstrates a commitment to ongoing support, both financial and technical, and to continuation of the program for a period sufficient to enable students to complete a degree/certificate.

EVALUATION AND ASSESSMENT

- The institution evaluates the program's educational effectiveness, including assessments of student learning outcomes, student retention, and student and faculty satisfaction. Students have access to such program evaluation data.

- The institution provides for assessment and documentation of student achievement in each course and at completion of the program.